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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Gerhard Dressel

DRESSEL-2

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/540,199	Applicant(s) DRESSEL, GERHARD	
	Examiner Burton S. Mullins	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Amendment

2. The preliminary amendment filed 23 June 2006 canceling claims 1-4 and adding new claims 5-21 has been entered.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 23 June 2005 has been considered by the examiner.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the “pitch” of the stranded wires (claim 6), the stranded wires and filaments of different cross-sections (claims 7-8), the “alternating” pattern of the upper and lower wires (claim 10); the ring or trough-shape and cap-like configuration of the holding elements (claims 14-15), fan blades on the holding element (claim 16); a conducting element driven into the section to establish contact between the wires (claim 19); a potting compound in the slot (claim 20); or wherein the contact is realized immediately after the stranded wires exit the rotor (claim 21) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed

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invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 5, 8, 18 and 20-21 are objected to because of the following informalities: In claim 5, “establish” is not idiomatic. Change to —comprise—or —form—. In claim 8, the phrase “each of the stranded wires and its filaments have a length of different cross sectional configuration over a length thereof” should be ---each of the stranded wires and its filaments have different cross sectional configuration over a length thereof”. In claims 18 and 20-21, “is

realized” is not idiomatic. Change to –made— or –established--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 5-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 5, the phrase “running in opposite directions” is indefinite and vague. The claimed invention is a squirrel-cage rotor with a short-circuited winding comprising conductors L1 and L2 in electrical contact with each other (specification, paragraphs 6&15). Since each conductor L1 and L2 is arranged in a “meandering” fashion (Fig.1), each “runs” in both directions, axially as well as radially, and thus describing them as “running in opposite directions” makes no sense. The claim language will be interpreted as meaning that the meandering second coil is shifted 180 degrees out of phase with respect to the meandering first coil, as shown in Fig.1. An alternative reading could be that the phrase refers to a product-by-process limitation, i.e., that the coils are “wound” or “placed” in a slot in opposite directions during manufacture, per paragraphs six and fourteen of the specification. The different meanings and scope highlight the indeterminate nature of the phrase.

In claim 6, the phrase “twisted with a predeterminable pitch” is vague and indefinite. It is not clear how a “twist” can have a pitch. Presumably this means the conductor windings are twisted in a non-random, uniform pattern. Alternatively, it could refer to the windings having a pitch. The former interpretation has been taken.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 5, 11-12, 14 and 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Fries (US 1,371,233). Fries teaches an induction motor comprising a squirrel cage rotor having a cage winding W made of flexible conductors *w* (Fig.3, p.1, lines 105-106), wherein the flexible conductors are stranded wires, i.e. copper conductors *w* passed back and forth longitudinally around teeth T in slots (p.2, lines 4-9), which are arranged in a meandering pattern (p.2, lines 17-20), running in opposite directions (p.2, lines 20-24), in slots of the squirrel cage rotor, so as to establish a cage connection in the rotor.

Regarding claim 11, the stranded conductors *w* are in electrical contact by means of end rings B, soldered to the conductors (p.2, lines 68-74).

Regarding claims 12 and 14, each ring B can be considered a “holding element for keeping the stranded wires in position” since they are soldered to the conductors at each end of the rotor.

Regarding claim 16, the conductors *w* bridging the gap between the rotor drum and the rings B serve as fans blades (Fig.1, p.2, lines 50-55).

Regarding claims 17-18, the “press-fitting” of the stranded wires is considered a product-by-process limitation and has not been given patentable weight. Fries teaches the structure of stranded wires or conductors *w* in electrical contact in a section thereof through

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“press-fitting” since each strand is wound in the slots and would necessarily contact other strands at sections in the slots when the slots are filled with strands per p.2, lines 56-57.

Regarding claim 19, the copper wedges F driven into the slots on top of the wire strands can be considered (p.2, lines 56-67) “a conducting element driven into the section for establishing the electric contact between the stranded wires in the slot”.

Regarding claim 20, the solder (p.2, lines 68-73) can be considered “conducting potting compound filled in the slot” for electrically contact.

Regarding claim 21, the rings B provide contact at a point “immediately after the stranded wires exit the rotor [drum A and heads D]” (Fig.1).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fries (US 1,371,233). Fries does not explicitly teach more than two stranded wires. However, this would have been obvious because Fries states that the cage winding W comprises a “wire or wires” (p.2, line 5) and also successive wires wound in the slots (p.2, line 21). This implies more than one wire, and it would have been obvious to employ more than two wires since duplication of parts of an invention has been held to involve ordinary skill.

Regarding claim 10, the wires are arranged in upper and lower layers (Fig.5) and in an “alternating” pattern as indicated in Fig.3, where the first wire threads through the slot in one direction, and the next wire threads through the slot in the opposite or “alternate” direction, due to the odd number of slots (p.2, lines 20-24).

11. Claims 5-6, 9, 11-12, 14, 17-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leibovich (US 4,761,602) in view of Tajima (JP 8-009606). Leibovich teaches an induction machine including a type of squirrel cage rotor 44 (c.5, lines 51-54) having a cage winding made of conductors or “continuous compound short-circuited loop members” 50 (c.7, lines 54-c.8, line 23, only one loop 50 is shown in Fig.5), wherein the conductors are arranged in a meandering or “serpentine” pattern (see c.4, lines 5-10 and Figs.5&7, which shows one conductor/loop 50 arranged in a meandering pattern in slots 46a,46d,46g,46j), running in opposite directions (each conductor 50 loop is offset one slot relative to the other, and thus “runs in an opposite direction” per the interpretation taken above in paragraph five) in slots 46a-46l of the squirrel cage rotor, so as to establish a cage connection in the rotor [sic].

Leibovich does not teach that the flexible conductors 50a-50d are flexible or that they comprise “stranded wires”.

Tajima teaches a motor comprising a squirrel cage rotor 3 having a cage winding 7 (Fig.9) made of flexible conductors 71 (abstract, Fig.4), wherein the flexible conductors are stranded wires (twisted copper strands 71Aa and 71Ab, Figs.4&8) which are arranged in a slots 61 (Fig.3) of the squirrel cage rotor 3. Use of flexible twisted copper strands reduces stray and resistance losses (abstract).

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It would have been obvious to modify Leibovich's squirrel cage rotor conductors and provide flexible stranded wire conductors per Tajima since this would have reduced stray and resistance losses.

Regarding claim 6, as best understood, the wires in Tajima are twisted "with a predeterminable pitch" since the twist is made in a predetermined, uniform pattern as evident from Figs.4&7a-7d. In other words, the wires in Tajima are not twisted randomly.

Regarding claim 9, Tajima teaches more than two stranded wires (Fig.7).

Regarding claim 11, the stranded wires in the slots in Tajima are in electrical contact by means of the end rings 72a/b.

Regarding claims 12 and 14, end rings 72a/b in Tajima hold the twisted wires together at either end of the rotor (Fig.1).

Regarding claim 17, the wires are inherently "press-fit" in the slots in Tajima since the slots are filled with the twisted strands.

Regarding claim 18, electrical contact is realized in a section of the stranded wires in Tajima where they contact the end rings 72a/b.

Regarding claim 21, end rings 72a/b in Tajima provide electrical contact "immediately after the stranded wires exit the rotor" (Fig.1).

12. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fries (US 1,371,233), or Leibovich (US 4,761,602) and Tajima (JP 8-009606), as applied to claim 12 above, further in view of Penn et al. (US 4,399,949). Neither Fries nor Leibovich/Tajima teach a holding element comprising an insulating material or a trough-shaped, cap-like configuration (claim 15).

Penn teaches a winding form for a dynamo-electric machine comprising an insulating holding member or 'winding form' 1 positioned to support end turns 3 of a coil at the end of the rotor core 2 (Fig.1). The insulating winding form provides a means for positioning the turns of the winding in a predetermined relationship (c.3, lines 22-27). The form 1 has a "trough shaped, cap-like configuration" since it includes troughs corresponding to slots and "caps" an end of the rotor core 2.

It would have been obvious to modify either Fries or Leibovich/Tajima and provide an insulating holding element per Penn to provide a means of positioning the winding turns.

Allowable Subject Matter

13. Claims 7-8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art does not teach the claimed squirrel-cage rotor including, inter alia "stranded wires have filaments, said stranded wires having different cross sectional configuration and their filaments having different cross sectional configuration" (claim 7) or "the stranded wires have filaments, each of the stranded wires and its filaments have...different cross sectional configuration over a length thereof" (claim 8).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029.

The examiner can normally be reached on Monday-Friday, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm

21 August 2006